IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

In re the Application of:

Inventor: Arvind Chakravarty et al.   IDS   2000-0534

Serial No.: |
                   | To be assigned
Filing Date: |

Title: PROACTIVE PREDICTIVE PREVENTATIVE NETWORK MANAGEMENT
         TECHNIQUE

To: DIRECTOR OF PATENTS AND TRADEMARKS
         WASHINGTON, D.C. 20231

Sir:

PRELIMINARY AMENDMENT

Prior to taking any official action, kindly amend the application as follows: (A marked up version is included in the appendix.)

IN THE SPECIFICATION

[0005]   Briefly, in accordance with a preferred embodiment, there is provided a method for maintaining the performance of a network, and more particularly, a data communications network, that includes at least one element, such as a router or switch for example. In accordance with the method, at least one attribute of the element is monitored periodically (e.g., hourly, daily or weekly). The monitored attribute is compared to a corresponding threshold value. Such monitoring and comparison yields an historic performance trend for the element from which a determination can be made whether the there is at least one crucial attribute of the element that warrants closer

monitoring. If the closer monitoring is warranted, then the element is monitored in near real time, say every ten minutes or sooner as desired, to determine whether a persistent performance degradation exists. If so, then the network element is altered, either by repair or replacement, to ameliorate the performance degradation. The foregoing method enables a network operator to better isolate those network elements that exhibit degraded performance, thus affording the network operator the ability to fix the trouble before the subscriber becomes aware of the problem.

[0008]   FIGURE 1 depicts a communications network 10 comprised of a plurality of network elements (e.g., routers/packet switches) 11_1-11_m (where m is an integer) interconnected by links 12_1-12_n (where n is an integer). The network 10 communicates traffic (i.e., data packets) between two or more hosts, exemplified by hosts 13 and 14. A first router 16 links the host 13 to a first Local Exchange Carrier (LEC) 18. A first Backbone-to- Horizontal Cross-connect (BHC) 22 connects the LEC 18 to router 11_1 within the network 10. The router 11_1 is "homed" to the host 13 and serves as the ingress/egress router for that host. A second router 22 links the host 14 to a second Local Exchange Carrier (LEC) 24. A second Backbone-to Horizontal Cross-connect (BHC) 26 connects the LEC 24 to router 11_2. The router 11_2 is "homed" to the host 14 and serves as the ingress/egress router for that host.

IN THE CLAIMS

1   1.   A method for maintaining performance of a network having at least one element,
2   comprising the steps of:
3   periodically monitoring at least one attribute of the one network element at
4   successive first intervals;
5   comparing each monitored attribute obtained during each successive first interval
6   to a corresponding threshold associated with the attribute to establish a historical trend for
7   each network element;

8   determining, from the historical trend associated with each of the monitored

9   elements if there exists at least one critical attribute of each monitored elements that

10   warrants closer scrutiny, and if so;

11   periodically monitoring [the] at least one critical attribute during successive

12   second intervals, each shorter than each said first interval, to determine whether each

13   monitored element exhibits persistent performance degradation.

1   8.   A method for maintaining performance of a network having at least one

2   element, comprising the steps of:

3   periodically monitoring at least one attribute of the one network element at

4   successive first intervals, said one attribute[d] determined from a failure model for said

5   one network element;

6   comparing each monitored attribute obtained during each successive first interval

7   to a corresponding threshold associated with the attribute to establish a historical trend for

8   each network element;

9   determining, from the historical trend associated with each of the monitored

10   elements if there exists at least one critical attribute of one of said monitored elements

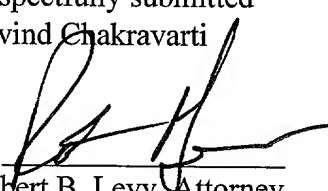11   that warrants closer scrutiny, and if so;

12   periodically monitoring at least one critical attribute during successive second

13   intervals, each shorter than each said first interval, to determine whether said monitored

14   element exhibits persistent performance degradation.

IDS 2000-0534
Preliminary Amendment

<center>REAMRKS</center>

Applicants request entry of this preliminary amendment to correct certain
grammatical errors and to make to minor clarifications in the specification. No new
matter has been added.

In the event that any issues remain following entry of this amendment, applicants'
attorney invites the examiner to contact him (908) 221-5714 for either a personal or
telephone interview if the examiner believes that such would expedite the prosecution of
this application.

Respectfully submitted
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by _____
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_____11/7/01_____
Date

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APPENDIX

<u>IN THE SPECIFICATION</u>

[0006]   Briefly, in accordance with a preferred embodiment, there is provided a method

for maintaining the performance of a network, and more particularly, a data

communications network, that includes at least one element, such as a router or switch for

example. In accordance with the method, at least one attribute of the element is

monitored periodically (e.g., hourly, daily or weekly). The monitored attribute is

compared to a corresponding threshold value. Such monitoring and comparison yields an

historic performance trend for the element from which a determination can be made

whether the there is at least one crucial attribute of the element that warrants closer

monitoring. If the closer monitoring is warranted, then the element is monitored in near

real time, say every ten minutes <u>or sooner as desired</u>, to determine whether a persistent

performance degradation exists. If so, then the network element is altered, either by

repair or replacement, to ameliorate the performance degradation. The foregoing method

enables a network operator to better isolate those network elements that exhibit degraded

performance, thus affording the network operator the ability to fix the trouble before the

subscriber becomes aware of the problem.

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interconnected by links 12_1-12_n (where n is an integer). The network 10 communicates

traffic (i.e., data packets) between two or more hosts, exemplified by hosts 13 and 14. A

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the ingress/egress router for that host.

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IN THE CLAIMS

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4   periodically monitoring at least one attribute of the one network element at

5   successive first intervals;

6   comparing each monitored attribute obtained during each successive first interval

7   to a corresponding threshold associated with the attribute to establish a[n] historical trend

8   for each network element;

9   determining, from the historical trend associated with each of the monitored

10   elements if there exists at least one critical attribute of each monitored elements that

11   warrants closer scrutiny, and if so;

12   periodically monitoring [the] at least one critical attribute during successive

13   second intervals, each shorter than each said first interval, to determine whether [the]

14   each monitored element exhibits persistent performance degradation.

1   8.   A method for maintaining performance of a network having at least one

2   element, comprising the steps of:

3   periodically monitoring at least one attribute of the one network element at

4   successive first intervals, said one attribute[d] determined from a failure model for said

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7   to a corresponding threshold associated with the attribute to establish a[n] historical trend

8   for each network element;

9   determining, from the historical trend associated with each of the monitored

10   elements if there exists at least one critical attribute of one of said monitored elements

11   that warrants closer scrutiny, and if so;

12   periodically monitoring at least one critical attribute during successive second

13 intervals, each shorter than each said first interval, to determine whether said monitored

14 element exhibits persistent performance degradation.

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